

REMARKS

In view of the above amendments, and the following remarks, Applicant requests favorable reconsideration of the above-identified application.

Claims 1, 3, and 5-10 are now pending in this application, with Claim 1 being the sole independent claim. By this Amendment, Applicant has canceled Claims 2 and 4, amended the specification and Claims 1, 3 and 5, and added new Claims 7-10. The changes to the specification attend to formal matters. No new matter has been added.

Figure 21 stands objected to as including a reference character not mentioned in the description. Accompanying this Amendment is a Submission of Replacement Drawing Sheet, which attends to this matter by removing the specified reference character.

Claims 3-5 stand objected to for lacking proper antecedent basis in the specification. Applicant has amended the claims to attend to this matter.

Claims 1, 2, 4, and 6 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 3,291,871 (Francis). Claim 3 stands rejected under 35 U.S.C. § 103 as being unpatentable over Francis in view of U.S. Patent No. 5,230,924 (Li). Claim 5 stands rejected under 35 U.S.C. § 103 as being unpatentable over Francis in view of U.S. Patent No. 6,288,840 (Perkins et al.). Applicant traverses these rejections.

As recited in independent Claim 1, Applicant's invention is directed to an optical element having a substrate, a first diffraction grating, and a second diffraction grating. The first diffraction grating is formed of titanium, or a compound thereof, and is disposed on the substrate. The second diffraction grating is formed of aluminum, and is disposed on the first diffraction grating.

A diffraction grating formed of aluminum provides high polarization separation capabilities in the visible range, which is helpful to the device. Unfortunately, aluminum has a low melting point, which causes problems when used in a device which produces a high luminance. Applicant has overcome this problem by providing another diffraction grating formed of titanium, which helps compensate for the low melting point of aluminum. Consequently, the optical element is effective and durable when used in a device producing a high luminance.

Francis is directed to a method of forming fine wire grids. The Office Action cites this document as describing the use of copper, silver, and gold in the grids, which have different melting points. However, Applicant submits that this document does not describe the use of both of a diffracting grating made of titanium and a diffraction grating made of aluminum, which combination realizes high polarization separation capabilities in the visible range and alleviates melting point problems. Consequently, Applicant submits Francis fails to describe features recited in independent Claim 1.

Li is cited in the Office Action as describing generally accepted bonding techniques in the semiconductor industry. Perkins, et al. is cited as describing that a wire grid polarizer may be used with respect to the visible spectrum. Applicant submits that these documents fail to remedy the deficiencies discussed above with respect to Francis. In particular, Applicant submits that those documents do not describe the use of aluminum and titanium in the manner recited in the present claims.


Accordingly, Applicant submits that Francis, Li and Perkins, et al., taken alone or in combination, fail to disclose or suggest at least the features of a first diffraction grating which is formed of titanium, or a compound thereof, disposed on a substrate, and a second

diffraction grating which is formed of aluminum, disposed on the first diffraction grating, as recited in independent Claim 1.

The remaining claims in the present application are dependent claims which depend from independent Claim 1, and thus are patentable over cited art for reasons noted above with respect to Claim 1. In addition, each recites features of the invention still further distinguishing it from the applied documents of record. Applicant requests favorable and independent consideration thereof.

For the foregoing reasons, Applicant requests withdrawal of the outstanding rejections under 35 U.S.C. §§ 102 and 103, and allowance of this application.

Applicant's undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our address given below.


Justin J. Oliver
Attorney for Applicant
Registration No.: 44,986

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200

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